

HAIR STYLING TOOL

BACKGROUND OF THE INVENTION

1. Field of the Invention

5 The present invention relates to a hair styling tool. More particularly, the present invention relates to a flat hair crimping and/or straightening iron.

2. Description of the Related Art

10 Flat iron hair straighteners and/or crimpers are well known. Typically, these devices have two pivoting arms with at least one arm having a heating surface suitable for making direct contact with the hair of a user. These devices can provide a variety of different styling effects to the hair. For
15 example, the hair can be straightened, curled or crimped depending on the configuration of the heating surface as locks of hair are gripped between the two arms.

 A drawback associated with these conventional hair crimpers
20 and/or straighteners is found in the operating and/or styling inefficiency associated with styling damp or wet hair.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide an effective and versatile hair styling tool that is capable of efficiently styling damp or wet hair.

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It is another object of the present invention to provide a hair styling tool that has vent system.

It is still another object of the present invention to provide a hair styling tool that operatively cooperates with a variety of vented hair contacting elements.

It is yet another object of the present invention to provide a hair styling tool and complementary hair contacting elements that provide for different hair styling effects.

These and other objects and advantages of the present invention are achieved by a hair styling tool with a handle portion having at least two arms pivotally connected at a proximal end thereof. The hair styling tool has a hair engaging portion and one or more hair contacting elements. The hair

contacting elements can provide a predetermined hair styling effect. Hair contacting elements preferably have one or more apertures and/or perforated grooves disposed therein. The hair contacting elements can be removably connected to the styling
5 tool to selectively accomplish various hair styling techniques and/or effects.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a front perspective view of a hair styling tool
10 in accordance with an illustrative embodiment of the present invention;

Fig. 2 is a plan view of a hair engaging portion of the hair styling tool of Fig. 1 in accordance with an illustrative
15 embodiment of the present invention;

Fig. 3 is a side section view of the hair engaging portion of Fig. 2;

20 Fig. 4 is a plan view of a hair engaging portion of the hair styling tool of Fig. 1 in accordance with an illustrative

embodiment of the present invention;

Fig. 5 is a side section view of the hair engaging portion of Fig. 4;

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Fig. 6 is a plan view of a hair engaging portion of the hair styling tool of Fig. 1 in accordance with an illustrative embodiment of the present invention;

10 Fig. 7 is a side section view of the hair engaging portion of Fig. 6;

Fig. 8 is a top plan view of a contacting element in accordance with an illustrative embodiment of the present
15 invention;

Fig. 9 is a side section view of the contacting element of Fig. 8;

20 Fig. 10 is an end section view of the contacting element of

Fig. 8;

Fig. 11 is a top plan view of a contacting element in
accordance with an illustrative embodiment of the present

5 invention;

Fig. 12 is a side section view of the contacting element of
Fig. 11;

10 Fig. 13 is an end section view of the contacting element of
Fig. 11;

Fig. 14 is a top plan view of a contacting element in
accordance with an illustrative embodiment of the present

15 invention;

Fig. 15 is a side section view of the contacting element of
Fig. 14; and

20 Fig. 16 is an end section view of the contacting element of

Fig. 14.

DETAILED DESCRIPTION OF THE INVENTION

Referring to the drawings and, in particular, Fig. 1, a hair
5 styling tool in accordance with an illustrative embodiment of the
present invention is shown and generally represented by reference
numeral 1. Preferably, a hair styling tool 1 has at least a pair
of pivotally connected arms 10. Each arm 10 has a handle portion
12 and a hair engaging portion 14. Each hair engaging portion 14
10 has a hair contacting element 16.

Each arm 10 preferably has a proximal end 18 and a distal end
20. Arms 10 are pivotally connected preferably at a proximal end
18 thereof via a hinge 22. Hair engaging portion 14 is
15 preferably at a distal end 20 of arms 10 spaced a distance from
handle portion 12 and/or hinge 22.

However, arms 10 may also, or alternatively, be otherwise
connected and/or arranged. For example, arms 10 can be pivotally
20 connected at an intermediate portion of each arm. Hinge 22
preferably operates to bias arms 10 apart from each other. The
hinge bias may be selectively overcome via a user interaction.

For example, handle portion 12 can enable a user to selectively overcome the bias of hinge 22, such as, for example, by a squeezing action of the user's hand. That is, arms 10 can be manipulated via handle portions 12 thereof to cause arms 10 to pivot relative to each other, about hinge 22. The pivotal movement allows hair engaging portions 14 to move hair engaging portions 14 between a closed, relatively parallel hair engaging state, and an open, relatively separate hair disengaging state. Hair engaging portions 14 are preferably suitable to operatively accommodate hair contacting elements 16.

Arms 10 can preferably be made of any suitable material and/or combination of materials for providing safe and effective handling. Also, arms 10 may have any appropriate shape or configuration sufficient to accommodate a variety of different applications in use.

Hair engaging portion 14 of arms 10 can have any of a variety of shapes, sizes and/or configurations. For example, in the aspect of the invention reflected in Fig. 1, each hair engaging portion 14 can be in the form of a paddle with a substantially planar surface 24 suitable for mechanically and/or thermally cooperating with contacting elements 16. One or more

hair engaging portions 14 can house a heater 26 (see Figs. 3, 5, and 7) directly or indirectly connected to hair engaging portion 14 and a power source (not shown). One or both hair engaging portion 14 can have any of a variety of other aspects, some of which will now be discussed.

Referring to Figs. 2 through 6, in a preferred aspect of the present invention, each hair engaging portion 14 cooperates with its respective hair contacting element 16 to provide a venting feature. For example, as shown in Figs. 2 and 3, hair engaging portion 14 can have one or more vents 28 for allowing heat, pressure and/or moisture resulting during operative use of styling tool 1 to escape. Preferably, this venting feature reduces or eliminates the need for otherwise drying the hair (e.g., via a blow dryer) depending on the styling effect desired.

Vents 28 can have any of a variety of shapes, sizes and/or configurations as appropriate for accomplishing an intended purpose of the present invention. For example, referring to Figs. 4 and 5, in one aspect of the present invention, at least some vents 28 may have a larger cross-sectional area than others. At least some vents 28 may be recessed and/or connected

to a chamber 30, see Figs. 5 and 7. Chamber 30 can operate to direct the heat and/or moisture as desired. Chamber 30 may cooperate with an actuator 32 such as that shown in Fig. 5.

Actuator 32 may selectively control the extents to which vents 28 are open and/or closed. As shown in Figs. 6 and 7, Chamber 30 preferably allows for a first side 34 of at least one hair engaging portion 14 to have vents 28 of a first shape, size, number or arrangement and a second side 36, opposite first side 34, to have a second shape, size, number and arrangement. Vents 28 can be randomly arranged in any of a variety of patterns suitable for accomplishing intended purposes, aesthetic and/or functional, of the present invention.

In another preferred aspect of the present invention, one or more hair contacting elements 16 may selectively cooperate with their respective hair engaging portions 14 to provide additional and/or alternative hair styling options. Each hair contacting element 16 is preferably formed of a suitable heat conductive material such as, for example, a metallic material and/or a ceramic material. Hair contacting elements 16 can be fixed and/or removable with respect to hair engaging portion 14, and can have any shape, size and/or configuration appropriate for an intended use. For example, hair contacting elements 16

can have an upper surface 38 that is flat or smooth, as shown in Figs. 8 to 10 and 11 to 13, for straightening hair; corrugated, as shown in Figs. 14 to 16, for crimping hair; or otherwise formed to provide other hair styling effects.

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Referring to Figs. 8 through 16, in a preferred aspect of the present invention, hair engaging portions 14 operate with one or more hair contacting elements 16 that have apertures 40 and/or perforated grooves 42 therein. Apertures 40 and/or
10 perforated grooves 42 preferably communicate with vents 28 of hair engaging portion 14 to allow heat, pressure and/or moisture, resulting during use of styling tool 1, to escape. Apertures 40 and/or perforated grooves 42 of hair contacting element 16 can have any of a variety of shapes, sizes and/or
15 configurations as appropriate for accomplishing any of a variety of hair styling effects.

For example, referring to Figs. 8 through 10, in one aspect of the present invention, one or more hair contacting elements
20 16 can have a substantially flat or planar contacting surface with a pair of perforated grooves 42 therein. Referring to the hair contacting element shown, these perforated grooves 42 preferably are in direct fluid communication with vents 28 of

hair engaging portion 14. When hair contacting element 16 and hair engaging portion 14 are properly operatively connected, perforated grooves 42 and vents 28 are in direct alignment with each other. Alternatively, perforated grooves 42 may be
5 arranged in any of a variety of patterns suitable for accomplishing an intended purpose, aesthetic and/or functional.

Referring to Figs. 11 through 13, in another aspect of the present invention, at least some apertures 40 can have a larger
10 cross-sectional area than other apertures. Also, at least some apertures 40 may be recessed. Further, at least some apertures 40 can be in direct fluid communication with vents 28 of hair engaging portion 14 so that when hair contacting element 16 and hair engaging portion 14 are properly operatively connected,
15 apertures 40 and vents 28 are in direct alignment with each other. Apertures 40 can be arranged in any of a variety of patterns suitable for accomplishing intended purposes, aesthetic and/or functional, of the present invention.

20 Referring to Figs. 14 through 16, in still another aspect of the present invention, apertures 40 and/or perforated grooves 42 may be disposed in a non-planar contacting surface of hair contacting element 16. For example, as best shown in Fig. 16,

apertures 40 and/or perforated grooves 42 can be disposed in one or more depressions 44 of a corrugated surface of hair contacting element 16. Again, when hair contacting element 16 and hair engaging portion 14 are properly operatively connected, apertures 40 and/or perforated grooves 42 are preferably directly aligned with vents 28. However, apertures 40 and/or grooves 42 can be arranged in any of a variety of patterns suitable for accomplishing intended purposes, aesthetic and/or functional, of the present invention.

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Hair contacting elements 16 can also be provided with an engaging groove 46 as shown in Fig. 10, preferably in a lower surface 48 thereof, for cooperating with a complementary engaging tongue 50 associated with hair engaging portion 14, as shown in Figs. 1 and 3. This tongue 50 and groove 46 connection can be used to facilitate the interchangeability of the various hair contacting elements 16. In one aspect of the present invention, engaging groove 46 and tongue 50 can be thermally interactive so that heat generated via heater 26 of hair styling tool 1 can be selectively transferred to an engaged hair contacting element 16 via engaged tongue 50. Further, this tongue 50 and groove 46 connection preferably prevents any vertical displacement of hair contacting elements 16 with

respect to hair engaging portion 14.

Referring again to Fig. 1, in another aspect of the invention, hair engaging portion 14 can have a lock/release
5 mechanism 52 suitable to selectively secure hair contacting elements 16 in position and, in combination with the tongue 50 and groove 46 connection, prevent any lateral displacement of hair contacting elements 16 with respect to hair engaging portion 14.

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Each hair contacting element 16 may additionally or alternatively be configured with a fastener 54 for removably connecting to hair engaging portion 14. For example, in one aspect of the present invention, one or more hair engaging
15 portions 14 have one or more flanges 56, shown in Fig. 1. Flanges 56 are preferably configured so that hair contacting elements 16 can be snap-fit thereover via fastener 54. Other configurations may additionally and/or alternatively be used.

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The present invention having been thus described with particular reference to the preferred forms thereof, it will be obvious that various changes and modifications may be made therein without departing from the spirit of the present

invention as defined herein.